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displace the wrist of the transport arm relative to the axis of rotation at the shoulder of the transport arm, wherein the extension of the transport arm when the second drive shaft is rotated effects rotation of the end effector about the wrist, the rotation of the transport arm about the axis of rotation at the shoulder, the extension of the transport arm to radially displace the wrist relative to the axis of rotation at the shoulder and the rotation of the end effector about the wrist being in concert so that the substrate is moved into and out of the substrate holding area along an axis of translation from a number of generally parallel axes of translation straddling the axis of rotation at the shoulder.

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REMARKS

This is in response to the Final Office Action mailed 5/24/00 (Paper no. 5). Claims 1, 5, and 8 have been amended above. Claims 28, and 29 have been added. Claims 1-29 are now pending in this application.

Claims 1-5 have been rejected under 35 U.S.C. 102 as being anticipated by Fukasawa et al. (hereafter Fukasawa). The Applicant respectfully disagrees.

Claim 1 calls for rotating a first of two drive shafts to rotate the transport arm about an axis of rotation at the shoulder, and rotating a second of two drive shafts to extend the arm and displace the wrist relative to the

shoulder, wherein the extension of the transport arm (by rotating the second drive shaft) causes the rotation of the end effector about the wrist.

Fukasawa simply does not anticipate the combination of features called for in Claim 1. Fukasawa discloses a multi-joint arm member 5 with three convey arms (lower 51, middle 52, upper 53) which are independently pivoted (col. 6, lines 40-43). As shown in Fig. 4, each arm 51, 52, 53 of the multi-joint arm 5 in Fukasawa is pivoted by an independent motor (col. 6, lines 49-51). Thus, in Fukasawa, extension of the multi-joint arm 5 to radially displace the wrist (i.e. shaft 53a) relative to the shoulder (i.e. pivot shaft 61) is accomplished by pivoting the lower convey arm 51 (by rotating shaft 61) and the middle convey arm 52 (by rotating shaft 52a). However, in Fukasawa, rotation of shaft 61 and shaft 52a alone does not cause rotation of the upper convey arm 53 about the wrist (i.e. pivot shaft 53a). Instead, in Fukasawa, the third shaft 53a must be rotated in order to cause rotation of the upper convey arm 53 about the wrist. Thus, in Fukasawa, all three shafts 61, 52a, and 53a must be rotated to rotate the transport arm about the shoulder, extend the transport arm to radially displace the wrist, and rotate the upper convey arm about the wrist. By comparison, Claim 1 calls for rotating the first shaft to rotate the transport arm about the shoulder, and rotating the second shaft to extend the arm (which radially displaces the wrist) and cause rotation of the end effector of the end effector about the wrist. Hence, Fukasawa uses three independent drive shafts

to perform what is performed according to the invention in Claim 1 with only two drive shafts. Claims 1-4 and 24-26 are patentable over the cited prior art and should be allowed.

Claim 5 recites that the end effector is moved from its initial position to its final position along an axis of translation. Fukasawa makes no mention whatsoever of the path followed by the upper convey arm, and substrate into and out of the substrate holding areas. Nowhere does Fukasawa disclose or suggest that the end effector is moved from an initial position to a final position along an axis of translation, or that the substrate is moved into and out of the substrate holding area along the axis of translation connecting the initial and final positions of the end effector as otherwise called for in Claim 5. Claims 5 and 27 also reads over the cited prior art and should be allowed.

Claims 8-16 have been rejected under 35 U.S.C. 103 as being unpatentable over Bacchi et al. (hereafter Bacchi) in view of Ohta et al. (hereafter Ohta). The Applicant respectfully disagrees.

Claim 8 now recites that the three side by side substrate holding areas are generally aligned with each other and disposed along one side of the drive section.

Neither Bacchi, nor Ohta disclose or suggest the features recited in Claim 8. In Fig. 6a, Bacchi discloses move profiles of hand 30 for retrieving wafers from two side by side cassettes 168L and 168R. Claim 8 by comparison recites transporting substrates into/out of three side by

side cassettes. This is not disclosed or suggested in Bacchi. In Fig. 1, Ohta merely discloses shelf stations 20, and a loading/unloading station 21 which are arranged in a circular array (col. 2, lines 45-46). The circular arrangement of the stations in Ohta is clearly different than side by side substrate holding areas which are generally aligned with each other and disposed along one side of the drive section (as called for in Claim 8). As neither Bacchi, nor Ohta disclose or suggest the features recited in Claim 8, the combination of Bacchi and Ohta cannot possibly provide features which are not disclosed or suggested in either reference. Claims 8-18 are patentable over the cited prior art and should be allowed.

Claims 28, and 29 have been added to further claim features of the Applicant's invention as described in the instant Specification and shown in the instant drawings.

Enclosed is a check in the amount of \$110.00 as payment for the fee for a petition for a one month extension of time. Please charge deposit account 16-1350 for any fee deficiencies arising from the filing of this Amendment.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present are clearly novel and patentable over the prior art of record. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issue

remain, the Examiner is invited to call Applicant's Attorney at the telephone number indicated below.

Respectfully submitted,

J. W.

9/25/00

Janik Marcovici (Reg. No. 42,841)

Date

PERMAN & GREEN, LLP  
425 Post Road  
Fairfield, CT 06430  
(203) 259-1800  
Customer No. 2512

**CERTIFICATION UNDER 37 C.F.R. 1.8(a) and 1.10\***  
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I hereby certify that, on the date shown below, this correspondence is being deposited with the United States Postal Service on this date 9/25/00, in an envelope as "Express Mail Post Office to Addressee," Mailing Label No. EL627422091US, addressed to the Commissioner for Patents and Trademarks, Washington, D.C. 20231.

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